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a substrate,  
a first electrode disposed on the  
substrate,  
an intermediate member disposed on said  
first electrode, and having a side wall which includes an  
electron-emission layer containing an electrical  
discontinuity,

a second electrode spaced from said  
substrate in a direction normal to said substrate, wherein  
said electron-emission layer extends from said first  
electrode to said second electrode, and

a voltage applier, arranged for applying  
a voltage across the first and second electrodes to generate  
an electric field across a surface of the electron-emission  
layer for causing the electron-emission layer to emit an  
electron; and

a fluorescent device plate including:

a transparent substrate,  
a fluorescent layer,  
an acceleration electrode, and  
an acceleration voltage applier, arranged  
for applying an acceleration voltage to the acceleration  
electrode,

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wherein the electron source plate and the  
fluorescent device plate form a vacuumed housing wall of the  
display device.

44. The display device of Claim 43, wherein said  
electron-emission layer comprises a conductive region and an  
insulating region.

45. The display device of Claim 43, wherein said  
electron-emission layer contains carbon.

46. The display device of Claim 43, wherein an end  
of one of the first and second electrodes is flush with the  
sidewall of the intermediate member.

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47. (Amended) A display apparatus comprising:  
an electron source plate including:  
a substrate,  
a first electrode arranged on the  
substrate,  
an insulating member arranged on the  
substrate so that an end of the insulating member forms a  
sidewall on the substrate,  
a second electrode arranged on the  
insulating member, and

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an electron-emission layer containing an electrical discontinuity, the electron-emission layer being disposed on the sidewall of the insulating member and extending from the first electrode to the second electrode, for emitting electrons upon an application of an electric field across the first and second electrodes, and

a voltage applier, arranged for applying a voltage across the first and second electrodes to generate an electric field across a surface of the electron-emission layer; and

a fluorescent device plate including:

a transparent substrate,

a fluorescent layer,

an acceleration electrode, and

an acceleration voltage applier, arranged for applying an acceleration voltage to the acceleration electrode,

wherein the electron source plate and the fluorescent device plate form a vacuumed housing wall of the display apparatus.

48. (Amended) The display apparatus of Claim 47, wherein said voltage applier has a pair of electrodes including an upper electrode positioned at an upper part of

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the sidewall of the insulating member and a lower electrode positioned at a lower part of the sidewall of the insulating member, and wherein said voltage applier generates the electric field across the surface of the electron-emission layer.

49. The display apparatus of Claim 47, wherein said electron-emission layer comprises a conductive region and an insulating region.

50. The display device of Claim 47, wherein said electron-emission layer contains carbon.

51. (Amended) A display apparatus comprising:  
an electron source plate including:  
a substrate, and  
a plurality of electron emission elements arranged in a matrix of rows and columns on said substrate, each electron emission element being formed in a laminated structure and comprising:  
a first electrode disposed on the substrate,  
an intermediate member disposed on said first electrode, and having a side wall which includes an electron-emission layer containing an electrical

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discontinuity, wherein the electron-emission layer emits an  
electron upon an application of a low voltage across a  
surface thereof, and

a second electrode spaced from said  
substrate in a direction normal to said substrate, wherein  
the electron-emission layer extends from the first electrode  
to the second electrode;

a matrix wire configuration  
comprising row wires and column wires respectively  
corresponding to the rows and columns of the electron  
emission elements arranged in the matrix;

a signal applier, arranged for  
applying (i) a scan signal to the row wires, and (ii) a  
modulation signal to the column wires corresponding to the  
scanned electron emission elements, to cause a low voltage to  
be applied across the first and second electrodes of each of  
the electron emission elements, wherein said signal applier  
applies the modulation signal to the column wires in  
synchronization with the application of the scan signal to  
the row wires; and

a fluorescent device plate including:

a transparent substrate,

a fluorescent layer,

an acceleration electrode, and

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an acceleration voltage applier,  
arranged for applying an acceleration voltage to the  
acceleration electrode,

wherein the electron source plate and the  
fluorescent device plate form a vacuumed housing wall of the  
display device.

52. (Amended) The display apparatus of Claim 51,  
wherein said signal applier simultaneously applies the  
modulation signal to the electron emission elements on a  
selected row in synchronization with the scan signal.

53. (Amended) A display apparatus comprising:  
an electron source plate including:  
a substrate, and  
a plurality of electron emission  
elements arranged in a matrix of rows and columns on said  
substrate, each electron emission element including:  
a first electrode arranged  
on the substrate,  
an insulating member  
arranged on the substrate so that an end of the insulating  
member forms a sidewall on the substrate,  
a second electrode  
arranged on the insulating member, and

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an electron-emission layer  
containing an electrical discontinuity, said electron-  
emission layer being disposed on the sidewall of the  
insulating member and extending from the first electrode to  
the second electrode for emitting electrons upon an  
application of a low voltage across the first and second  
electrodes;

a matrix wire configuration which  
comprises row wires and column wires respectively  
corresponding to the rows and columns of the electron  
emission elements arranged in the matrix;

a signal applier, arranged for  
applying (i) a scan signal to the row wires, and (ii) a  
modulation signal to the column wires corresponding to the  
scanned electron emission elements, to cause a low voltage to  
be applied across the electron-emission layer of each  
electron emission element, wherein said signal driver applies  
the modulation signal to the column wires in synchronization  
with the application of the scan signal to the row wires; and

a fluorescent device plate including:

a transparent substrate,

a fluorescent layer,

an acceleration electrode, and

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an acceleration voltage applier,  
arranged for applying an acceleration voltage to the  
acceleration electrode,

wherein the electron source plate and the  
fluorescent device plate form a vacuumed housing wall of the  
display device.

54. (Amended) The display apparatus of Claim 53,  
wherein said signal applier simultaneously applies the  
modulation signal to the electron emission elements on a  
selected row in synchronization with the scan signal.

55. (Amended) The display apparatus of Claim 53,  
wherein said signal applier has a pair of electrodes  
including an upper electrode positioned at an upper part of  
the sidewall of the insulating member and a lower electrode  
positioned at a lower part of the sidewall of the insulating  
member, and wherein said signal applier generates an electric  
field across the surface of the electron-emission layer.

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56. (Amended) A display apparatus comprising:  
an electron source plate including:  
a substrate, and



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a plurality of electron emission elements  
arranged in a matrix of rows and columns on said substrate,  
each electron emission element including:

a first electrode disposed on said  
substrate,

a second electrode disposed on said  
substrate, and

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an electron-emission layer  
containing an electrical discontinuity, at least a portion of  
said electron-emission layer extending between a surface of  
the first electrode and a surface of the second electrode,  
for emitting an electron upon an application of a low voltage  
across said first and second electrodes;

a matrix wire configuration comprising  
row wires and column wires respectively corresponding to the  
rows and columns of the electron emission elements arranged  
in the matrix;

a signal applier, arranged for applying  
(i) a scan signal to the row wires, and (ii) a modulation  
signal to the column wires corresponding to the scanned  
electron emission elements, to cause a low voltage to be  
applied across the first and second electrodes of each  
electron emission element, wherein the signal applier applies  
the modulation signal to the column wires in synchronization  
with the application of the scan signal to the row wires; and

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a fluorescent device plate including:

a transparent substrate,

a fluorescent layer,

an acceleration electrode, and

an acceleration voltage applier,

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arranged for applying an acceleration voltage to the  
acceleration electrode,

wherein the electron source plate and the  
fluorescent device plate form vacuumed housing walls of the  
display device.

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57. The display apparatus of Claim 56 wherein said  
modulation signal is made according to an information signal.

58. The display apparatus of Claim 56, wherein  
said electron-emission layer comprises a conductive region  
and an insulating region.

59. The display apparatus of Claim 56, wherein  
said electron-emission layer contains carbon.

60. The display apparatus of Claim 56, wherein  
said acceleration voltage is in the range of 0.8kV to 1.5kV.

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<sup>48</sup>  
~~61.~~ (Amended) The display apparatus of Claim <sup>43</sup>~~56~~, wherein said signal applier simultaneously applies the modulation signal to the electron emission elements on a selected row in synchronization with the scan signal.

<sup>49</sup>  
~~62.~~ The display apparatus of Claim <sup>43</sup>~~56~~, wherein ends of said first and second electrodes are disposed in a lateral direction at least roughly parallel to the surface of the substrate and face each other, and said electron-emission layer is disposed between the ends of those electrodes.

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<sup>50</sup>  
~~63.~~ (Amended) The display apparatus of Claim <sup>49</sup>~~62~~, wherein said signal applier applies the voltage across the electrodes to generate an electric field across the surface of the electron-emission layer.

<sup>51</sup>  
~~64.~~ The display apparatus of Claim <sup>43</sup>~~56~~, wherein said voltage applied across said first and second electrodes is less than or equal to 32 Volts.

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~~65.~~ (Added) The display apparatus of any one of Claims 51, 53, or 56, further comprising at least one grid electrode disposed between said electron source plate and said fluorescent device plate.